Trend Study 11B-16-00

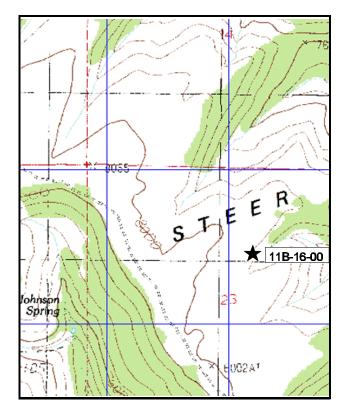
Study site name: <u>Steer Ridge</u>. Range type: <u>Mixed Mountain Brush</u>.

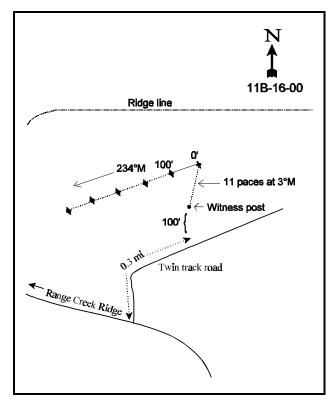
Compass bearing: frequency baseline 234°M.

Footmark (first frame placement) 5 feet, footmarks (frequency belts) line 1 (11ft), line 2 (34ft), line 3 (59ft), line 4 (71ft), line 5 (95ft).

LOCATION DESCRIPTION

From Sunnyside, go up Water Canyon to the summit (Bruin Point). At the summit take the middle fork and go 0.35 miles. Stay right at the fork just beyond a cattle guard and go 0.9 miles. Go through an intersection beyond another cattle guard and go 3.1 miles to a fork. Stay right and travel another 2.9 miles to a fork and turn left just before a gate. Proceed 0.1 miles to a gate. Continue 4.2 miles to a fork. Stay left and continue an additional 1.3 miles to another gate. Continue 5.1 miles and turn left on a twin track road. Drive north 0.3 miles to a witness post 100 ft off the left side of the road. The 0 ft stake is 11 paces away at 3°M and is marked with browse tag number 32 DWR. The baseline runs at an azimuth of 234°M.





Map Name: Steer Ridge Canyon

Township 14S, Range 16E, Section 23

Diagrammatic Sketch

UTM. 4383080.755 N, 578010.174 E

DISCUSSION

Trend Study No. 11B-16 (32-22)

The <u>Steer Ridge</u> trend study was established in 1994. It samples a mountain shrub community near the end of Steer Ridge, only a few miles from the Green River. Elevation of the site is 7,800 feet which slopes slightly to the south. The mountain brush community type here is noticeably shorter in stature than that of the Twin Hollow study. The area is used heavily by wintering elk and deer. Deer are forced to move to lower elevations when snows get deeper, but elk are often seen in the area all winter. Pellet group data from 2000 estimate 82 elk and 19 deer use days/acre (203 edu/ha and 47 ddu/ha). There was also some light use by horses and cattle in 1994, although there has been no livestock use since.

The soils on this site are moderately shallow and rocky with bed rock found at a depth of only 10 to 12 inches. Average effective rooting depth is estimated at just 10 inches. There appears to be enough cracks in the rock to allow deeper rooted shrubs like serviceberry, bitterbrush, and mountain big sagebrush to becoming establish. The deepest soil readings occurred near the base of shrubs. Parent material is sandstone and soil texture is a sandy clay loam with a neutral soil reaction (pH of 7.2). Phosphorus is limited at 5.5 ppm, as values less than 10 ppm have been shown to limit normal plant growth and development. The soil profile is rocky throughout with surface rock having a cover of 9% in 1994 and 15% in 2000. Vegetative and litter cover are moderately low for a high elevation site. This suggests a lower site potential due to the more shallow soil than would normally be expected for a site at this elevation.

Key browse on this site consist of mountain big sagebrush and bitterbrush which provided 84% of the total shrub cover in 1994 and 85% in 2000. The bitterbrush have mostly good vigor with a density of 1,120 plants/acre and only 9% classified as decadent in 2000. They are a shorter growth form averaging just over 2 feet in height with a crown diameter of 4.5 feet. Use is mostly light to moderate. Mountain big sagebrush has a moderate density of 2,160 plants/acre ('00). It shows a higher percent decadency which has increased from 13% in 1994 to 22% in 2000. Use is mostly light to moderate. It appears that the abundant perennial grass component combined with drought may be negatively affecting the sagebrush. This is more pronounced in the shallow draw bottoms where perennial grasses are more abundant and where most of the sagebrush appear to be decadent and dying with little apparent reproduction. The more shallow soil and reduced site potential makes this area a more marginal site for mountain big sagebrush. Very high abundance of ants, associated with the presence of aphids, also appears to be effecting the vigor of some sagebrush plants. However, reproduction is adequate to maintain the stand.

Serviceberry provides an additional 8% of the total browse cover with a small population of 160 plants/acre ('00). These shrubs are more heavily utilized than sagebrush or bitterbrush. Individual serviceberry are smaller in stature due to the shallow, rocky soil. Average height is only 31 inches making many plants all available to hedging. Other common shrubs include dwarf and mountain low rabbitbrush. There are also a few scattered rubber rabbitbrush, mountain mahogany, snowberry, and gray horsebrush.

The herbaceous understory is abundant and diverse with about 60% of the total vegetative cover coming from the herbaceous species. What makes this site better than most is that there are several co-dominant grass species including; thickspike, bluebunch wheatgrass, mutton bluegrass, and needle-and-thread. This abundance of key grass species would be advantageous for elk winter use. Forbs are diverse but they do not provide very much forage. The 25 species sampled in 1994 and 27 species in 2000 provide only about 3.5% cover.

1994 APPARENT TREND ASSESSMENT

Soil trend for the site appears stable with good herbaceous vegetative cover (60% of the vegetative cover) which provides the best protection from high intensity summer storms. The trend for key browse would also appear

stable with good age distributions, excellent vigor, and low rates of decadency which are not bad for the length and severity of the current drought. The herbaceous understory is also very good, with excellent production from more than five species of grasses. The forb component has many species (25), but only contributes 11% of the total vegetative cover.

2000 TREND ASSESSMENT

Trend for soil is improving with increases in vegetative and litter cover combined with a decline in cover of bare ground. Herbaceous vegetation, which better protects the soil from high intensity storms, accounts for nearly 60% of the total vegetative cover. Trend for browse is stable with stable populations of mountain big sagebrush and bitterbrush. Use of these shrubs is light to moderate, vigor is good, and percent decadence is low. Trend for the herbaceous understory is stable. Sum of nested frequency of perennial grasses declined slightly but cover increased from 14% to almost 18%. Nested frequency of mutton bluegrass increased significantly while the less desirable Salina wildrye declined significantly. Prairie junegrass, a warm season species, was abundant in 1994, but decreased significantly in 2000 as well. It appears that the extremely dry conditions this summer have contributed to this decline. Sum of nested frequency of perennial forbs also declined slightly with only two species, sego lily and desert parsley, declined significantly. Total cover of forbs is almost identical to 1994.

TREND ASSESSMENT

soil - up slightly (4) browse - stable (3) herbaceous understory - stable (3)

HERBACEOUS TRENDS --Herd unit 11B Study no: 16

Herd unit 11B, Study no: 16					T .		
T Species	Nested Freque		Quadra Freque		Average Cover %		
y p	Treque	iic y	Treque	iic y	COVEL 7	0	
e	'94	'00	'94	'00	'94	'00	
G Agropyron dasystachyum	146	160	43	55	1.61	3.76	
G Agropyron spicatum	151	147	52	45	4.19	4.91	
G Bouteloua gracilis	1	4	-	2	-	.18	
G Bromus tectorum (a)	-	1	-	1	-	.00	
G Elymus salina	69	*25	20	10	2.32	.63	
G Koeleria cristata	86	*5	29	2	1.81	.03	
G Oryzopsis hymenoides	32	*9	11	3	.28	.19	
G Poa fendleriana	72	*187	29	62	1.15	4.67	
G Poa secunda	27	39	10	14	.17	.24	
G Sitanion hystrix	1	1	1	1	.00	.03	
G Stipa comata	67	78	22	31	1.95	3.06	
G Stipa lettermani	27	*_	11	1	.72	.00	
Total for Annual Grasses	0	1	0	1	0	0.00	
Total for Perennial Grasses	678	655	228	225	14.25	17.73	
Total for Grasses	678	656	228	226	14.25	17.73	
F Agoseris glauca	12	6	7	5	.06	.05	
F Antennaria spp.	14	8	6	2	.13	.15	
F Arabis spp.	3	ı	1	1	.00	1	
F Arenaria fendleri	10	ı	3	ı	.18	-	
F Astragalus convallarius	-	3	-	1	=	.00	
F Aster spp.	-	5	-	2	-	.01	
F Astragalus spp.	3	7	1	3	.01	.34	
F Balsamorhiza sagittata	7	3	4	3	.86	.33	
F Calochortus flexuosus	17	*_	6	ı	.05	-	
F Castilleja linariaefolia	23	22	9	10	.14	.12	
F Chenopodium fremontii (a)	1	-	1	-	.00	=	
F Chenopodium leptophyllum (a)	5	-	2	-	.01	-	
F Comandra pallida	4	*18	2	10	.03	.32	
F Collinsia parviflora (a)	-	4	_	2	-	.01	
F Crepis acuminata	10	9	5	4	.07	.19	
F Eriogonum alatum	13	9	6	3	.08	.09	
F Erigeron eatonii	18	14	7	7	.16	.27	
F Erigeron spp.	-	1	-	1	-	.00	
F Eriogonum umbellatum	23	14	9	6	.29	.08	
F Gayophytum ramosissimum (a)	2	4	1	2	.00	.01	
F Linum lewisii	-	*7	-	4	-	.02	

Т у р	Species	Nested Freque	ncy	Quadra Freque		Average Cover %		
e		'94	'00	'94	'00	'94	'00	
F	Lithospermum ruderale	12	5	5	2	.19	.18	
F	Lomatium spp.	33	*1	11	1	.08	.00	
F	Oenothera spp.	-	3	-	1	-	.00	
F	Penstemon caespitosus	10	2	5	2	.24	.04	
F	Penstemon spp.	2	2	2	2	.01	.01	
F	Phlox longifolia	58	53	22	25	.11	.32	
F	Polygonum douglasii (a)	45	*16	21	7	.10	.03	
F	Sphaeralcea coccinea	78	62	32	26	.77	.67	
F	Taraxacum officinale	-	3	-	1	-	.03	
F	Tragopogon dubius	-	-	-	-	.00	-	
F	Trifolium spp.	-	6	-	2	-	.01	
T	otal for Annual Forbs	53	24	25	11	0.12	0.05	
Т	otal for Perennial Forbs	350	263	143	123	3.50	3.29	
_	otal for Forbs	403	287	168	134	3.63	3.34	

^{*} Indicates significant difference at % = 0.10 (annuals excluded)

BROWSE TRENDS --Herd unit 11B, Study no: 16

Average Species Strip Cover % Frequency '94 00' '94 00' B Amelanchier utahensis 4 5 .03 1.19 78 62 3.79 Artemisia tridentata vaseyana 6.40 B Cercocarpus montanus 0 0 52 33 .74 Chrysothamnus depressus 1.45 15 B Chrysothamnus viscidiflorus 16 .29 .18 lanceolatus 3 Gutierrezia sarothrae 1 .00 0 1 Opuntia spp. .00 43 41 B Purshia tridentata 6.48 6.65 B Symphoricarpos oreophilus 2 2 .03 .00 Tetradymia canescens 4 .03 .18 206 163 12.13 15.35 Total for Browse

BASIC COVER --

Herd unit 11B, Study no: 16

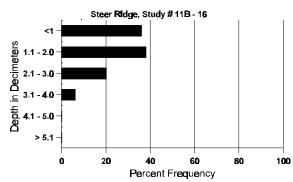
Cover Type	Nested Frequence	су	Average Cover %	
	'94	'00	'94	'00
Vegetation	526	410	38.01	41.91
Rock	304	177	6.60	6.08
Pavement	264	302	2.01	9.07
Litter	369	475	20.10	46.68
Cryptogams	12	19	.06	.30
Bare Ground	361	341	20.32	18.44

SOIL ANALYSIS DATA --

Herd Unit 11B, Study # 16, Study Name: Steer Ridge

Effective rooting depth (inches)	Temp °F (depth)	рН	%sand	%silt	%clay	%0M	РРМ Р	РРМ К	dS/m
10.82	66.8 (12.68)	7.2	52.0	25.4	22.6	3.3	5.5	176.0	0.7

Stoniness Index



PELLET GROUP FREQUENCY --

Herd unit 11B, Study no: 16

Туре	Quadra Freque	
	'94	'00
Rabbit	7	7
Horse	1	-
Elk	44	53
Deer	37	21
Cattle	2	=

Pellet Transect											
Days Use per Acre (ha)											
-											
-											
82 (202)											
20 (48)											

BROWSE CHARACTERISTICS --

Herd unit 11B, Study no: 16

He	rd ui	nit 11B,	Study	no: 16														
A G	Y R	Form C	lass (N	No. of F	Plants)					Vigor Cl	lass			Plants Per Acre	Average (inches)		Total
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Y	94	2	-	-	-	-	-	-	-	-	2	-	-	-	40			2
	00	-	-	-	1	-	-	-	-	-	1	-	-	-	20			1
M	94	2	1	-	-	-	-	-	-	-	3	-	-	-	60	30	42	3
	00	3	1	-	-	3	-	-	-	-	5	-	2	-	140	31	46	7
%	Plar	nts Show	_		derate	Use		vy Us	<u>se</u>		oor Vigor					%Chang	<u>e</u>	
		'94 '00		20% 50%			00%)% 5%				-	+38%		
		00		2070	,		007	o			,,0							
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	00	3	-	-	-	-	-	-	-	-	3	-	-	-	60			3
Y	94 00	26 14	2	-	- 1	-	-	-	-	-	26 15	- 1	- 1	-	520 340			26 17
Н				-	1					_		1	1	_		10	2.6	
M	94 00	75 37	11 19	4 2	3 8	1	-	-	-	-	93 62	5	-	-	1860 1340	19 17	26 26	93 67
D	94	3	14		-		1			_	15	-	_	3	360	17	20	18
٦	00	17	6	-	1	-	-	-	-	_	11	5	-	8	480			24
X	94	_	_	_	_	_	_	_	_	_	_	_	_	_	460			23
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	200			10
%	Plar	nts Show	ing	Mod	derate	Use	Hea	ıvy Us	<u>se</u>	Po	oor Vigor				(%Chang	<u>e</u>	
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		'00'		26%)		02%	ó		08	3%							
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	00														0		44	0
%	Plar	nts Show			derate	Use		ıvy Us	se		oor Vigor				(%Chang	e	
		'94		00%			00%)%							
		'00'		00%)		00%	Ó		0()%							
To	otal I	Plants/A	cre (ex	cludin	g Dea	ad & S	eedlin	ıgs)					'94		0	Dec	:	_
	'00 -																	

A G		Form Cl	lass (N	lo. of l	Plants)					Vigor Cl	ass			Plants Per Acre	Average (inches)	Total	
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C	hryso	othamnus	s depr	essus												•		
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L	00	5	-	-	-	-	-	-	-	-	5	-	-	-	100		5	
M	94 00	151 72	14 1	-	2	-	-	2	- -	-	169 73	-	-	-	3380 1460	6 9 4 7		
D	94 00	3 11	-	-	-	-	-	-	-	-	- 7	-	-	3 4	60 220		3 11	
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M	94 00	23 18	1	-	- 4	-	-	-	-		24 22	-	-	-	480 440			
D	94 00	- 1	-	- -	-	-	-	-	- -	-	- 1	-	-	-	0 20		0	
X	94 00	-	-	-	- -	- -	- -	- -	- -	-	-	- -	- -	-	0 20		0	
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Total Plants/Acre (excluding Dead & Seedlings) '94 500 Dec: 0% '00 460 4%																		

A Y Form Class (No. of Plants) G R											Vigor Cla	ass			Plants Per Acre	Average (inches)		Total	
E	10		1	2	3	4	5	6	7	8	9	1	2	3	4	T CT T ICTC	Ht. Cr.		
G	utier	rezia	sarot	hrae															
Μ	94	(3	-	-	-	-	-	-	-	-	3	-	-	-	60	6	8	3
	00		-	-	-	-	-	-	-	-	-	-	-	-	-	0	4	7	0
D	94 00		- 1	-	-	-	-	-	-	-	-	- 1	-	-	-	0 20			0 1
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'94 00% 00% '00 00% 00%)%)%				-	-67%	_				
Total Plants/Acre (excluding Dead & Seedlings)											'94 '00		60 20	Dec:		0% 100%			
O_{j}	punt	ia spp).																
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Т	Total Plants/Acre (excluding Dead & Seedlings)													'94 '00		20 0	Dec:		-
Pι	ırshi	a trid	entata	ı															
Y	94 00		7 3	-	-	-	-	-	-	-	-	7 2	-	1	-	140 60			7 3
M	94 00	3′ 25		9	-	1	9 10	- 1	-	-	-	56 46	2	-	-	1120 960	20 26	51 56	56 48
D	94 00		1	- 1	2	- 1	4	-	-	-		7 3	-	- 1	- 1	140 100			7 5
X	94 00		- -	-	-	-	- -	- -	- -	-	-	-	-	-	-	40 20			2
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То	otal I	Plants	/Acre	e (exc	luding	g Dea	ad & S	eedlin	gs)					'94 '00		1400 1120	Dec:		10% 9%
Sy	mpl	norica	rpos	oreop	hilus														
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%	Plai		owin 194 100	g	Mod 00% 00%		Use	Hear 00% 00%		<u>e</u>	00	oor Vigor)%)%					%Chango -33%	<u>e</u>	
То	otal l	Plants	/Acre	e (exc	luding	g Dea	ad & S	eedling	gs)					'94 '00		60 40	Dec:		-

A G	Y R	Forn	n Cla	ıss (N	o. of l	Plants)					Vigor Cl	ass			Plants Per Acre	Average (inches)		Total
E	K		1	2	3	4	5	6	7	8	9	1	2	3	4	T CI ACIC	Ht. Cr.		
Tetradymia canescens																			
Y	94		1	-	-	-	-	-	-	-	-	1	-	-	-	20			1
	00		-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
M	94		6	1	-	-	-	-	-	-	-	7	-	-	-	140	8	12	7
	00		3	-	-	-	-	-	-	-	-	3	-	-	-	60	8	13	3
D	94		-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	00		-	1	-	-	-	-	-	-	-	1	-	-	-	20			1
%	94 13% 00%								00	oor Vigor)%)%	<u>%Change</u> -50%								
Т	Total Plants/Acre (excluding Dead & Seedlings)													'94 '00		160 80	Dec	:	0% 25%